REMARKS/ARGUMENTS

Claims 49-139 are pending in the present application. Claims 1-48 are canceled; claims 49, 66-67, 72, 77, 79, 82, and 95 are amended; and claims 96-139 are added. New claims 96-115 recite similar subject matter as that of claims 50-94. New claims 116 and 119-139 recite similar subject matter as that of claims 49-94. Support for the claim amendments and the new claims may at least be found in the claims, themselves, and also in Specification on paragraphs [0100]-[0108] and [0214]-[0230]. Reconsideration of the claims is respectfully requested.

Applicants have amended some claims and canceled others. Applicants do not concede that the subject matter encompassed by the earlier presented claims is not patentable over the art cited by the Examiner. Applicants canceled and amended claims in this response solely to facilitate expeditious prosecution of this application. Applicants traverse all rejections and respectfully reserve the right to pursue the earlier-presented claims, and additional claims, in one or more continuing applications.

I.   35 U.S.C. § 101

The Examiner has rejected claims 49-95 under 35 U.S.C. § 101 because in order for a method to be considered a "process", a claimed process must either be tied to another statutory class of invention, or transform underlying subject matter to a different state or thing.

Applicants have amended independent claims 49 and 95 to recite "providing a data structure that is stored in a memory…" As memory is a physical and tangible object, amended claims 49 and 95 now recite statutory subject matter.

Additionally, Applicants have amended claims 49 and 95 to recite "displaying, on a display, at least one path within the directed graph…" A display is a physical and tangible object, and amended claims 49 and 95 recite subject matter that cannot be performed by writing on a piece of paper. Therefore, amended claims 49 and 95 now recite statutory subject matter.

Additionally, Applicants have amended claims 49 and 95 to recite "generating a report about the directed graph, wherein the report is displayed on the display…" Again, a display is a tangible object. Therefore, amended claims 49 and 95 now recite statutory subject matter.

Claims 50-94 are dependent on amended claim 49. Applicants have shown that amended claim 49 now recites statutory subject matter. Therefore, at least by virtue of their dependence on amended claim 49, claims 50-94 also recite statutory subject matter. Consequently, the rejection of claims 49-95 under 35 U.S.C. § 101 has been overcome.

II.   Objection to Claims

The Examiner has stated that claims 67, 72-76, and 77-78 were objected to as being of improper dependent form for failing to further limit the subject matter of claim 49, which is directed to a method for interactively viewing enterprise metadata.

Claim 67 has been amended to recite "identifying redundancies among the enterprise data assets that correspond to nodes that are included within the at least one path," further limits claim 49 by identifying redundant enterprise data assets that are represented by nodes within the generated path.

Claim 72 has been amended to recite "generating program code instructions corresponding to generating the report." As amended, claim 72 further limits claim 49 by generating program code that is executed to generate reports.

Claim 77 has been amended to recite "generating a request to apply at least one modification to the at least one path." As amended, claim 77 further limits claim 49 by modifying the path generated by the path finder tool.

Claims 73-76 depend on claim 72, and claim 78 depends on claim 77. Applicants have shown that amended claims 72 and 77 now properly limit the subject matter recited in claim 49. Therefore, at least by virtue of their dependence on claim 49, claims 73-76 and 78 also properly limit the subject matter of claim 49. Therefore, the objection to claims 67, 72-76, and 77-78 has been overcome.

III.   35 U.S.C. § 112, Second Paragraph

The Examiner has rejected claims 49-95 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter, which applicants regard as the invention.

Claims 49 and 95 have been amended to clarify how the directed edges of the graph represent relationships between the asset metadata. Specifically, claims 49 and 95 have been amended to recite "wherein a single directed edge from a first node of the directed graph to a second node of the directed graph indicates that the first node belongs to the second node, and wherein a pair of directed edges in both directions between the first node and the second node indicates a mapping between the first node and the second node."

Additionally, claims 49 and 95 have been amended to clarify how the path satisfies prescribed constraints. Namely, claims 49 and 95 now recite that prescribed constraints are defined in a query, and that the path generated to satisfy the prescribed constraints is within the directed graph.

Moreover, claims 49 and 95 have been amended to recite that the report "consists of asset metadata that correspond to the nodes traversed in the at least one path generated by the path finder tool." It is well known by those skilled in the art that the path finder tool is a programming interface to directed graphs that represent semantic networks. Therefore, claims 49 and 95 now particularly point out and distinctly claim the subject matter recited in the claims.

Claims 50-94 depend on claim 49, and Applicants have shown that amended claims 49 and 95 particularly point out and distinctly claim the subject matter. Therefore, at least by virtue of their dependence on claim 49, claims 50-94 also particularly point out and distinctly claim the subject matter. Consequently, the rejection of claims 49-95 under 35 U.S.C. § 112, second paragraph has been overcome.

IV.   35 U.S.C. § 103, Obviousness

The Examiner has rejected claims 49-95 under 35 U.S.C. § 103 as being unpatentable over Wachtel, U.S. Patent No. 6,847,974 (hereinafter "*Wachtel*"). This rejection is respectfully traversed.

The Examiner states:

> As for independent claims 49 and 95, WACHTEL fairly discloses a method and a computer-readable storage medium, implemented in a data processing system, for interactively viewing enterprise metadata, comprising:

a) providing a data structure in the form of a graph/diagram, with nodes of the graph representing asset metadata for enterprise data assets and edges of the graph representing relationships between the asset metadata;
{see Figs. 3, 7a, 7b, 9 and 11}

b) generating at least one path within the graph, wherein the path displays the several functions between the elements such as status, message, or relationship; and
{see Figs. 3, 5, 7a, 7b, 9 and 11}

c) generating a report about the graph, wherein the report is based on paths generated by said path finder.
{see Fig. 1, "Data Result", Fig. 3, Fig. 8, element 608 "Results Document"}

WACHTEL fairly teaches the claimed invention except for the function of the path in step (b), i.e. satisfies prescribed constraints. However, in view of the teachings of several features of the relationships between the elements, it would have been obvious to include other function on the path such as satisfies prescribed constraints as mere applying other similar function to achieve similar results. Furthermore, it appears that this function is considered as non-functional descriptive material (NFDM) on the path data of "...", thus having no patentable weight. The mere insertion of "constraints" data over "data" does not "impart functionality when employed as a computer component", thus having no patentable weight.

See MPEP 2106.01 "Descriptive material can be characterized as either "functional descriptive material" or "nonfunctional descriptive material." In this context, "functional descriptive material" consists of data structures and computer programs which impart functionality when employed as a computer component. (The definition of "data structure" is "a physical or logical relationship among data elements, designed to support specific data manipulation functions." The New IEEE Standard Dictionary of Electrical and Electronics Terms 308 (5th ed. 1993).) "Nonfunctional descriptive material" includes but is not limited to music, literary works, and a compilation or mere arrangement of data.

Office Action dated March 6, 2009, pages 8-10.

The Examiner bears the burden of establishing a *prima facie* case of obviousness based on prior art when rejecting claims under 35 U.S.C. § 103. *In re Fritch*, 972 F.2d 1260, 23 U.S.P.Q.2d 1780 (Fed. Cir. 1992). The prior art reference (or references when combined) must teach or suggest all the claim limitations. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). In determining obviousness, the scope and content of the prior art are… determined; differences between the prior art and the claims at issue are… ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background the obviousness or non-

obviousness of the subject matter is determined. *Graham v. John Deere Co.*, 383 U.S. 1 (1966). "Often, it will be necessary for a court to look to interrelated teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art, all in order to determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue." *KSR Int'l. Co. v. Teleflex, Inc.*, 127 S. Ct. 1727 (April 30, 2007). "Rejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *Id.* (citing *In re Kahn*, 441 F.3d 977, 988 (CA Fed. 2006)).

Amended claim 49 is as follows:

> 49. A method, implemented in a data processing system, for interactively viewing enterprise metadata, comprising:
>
> providing a data structure that is stored in a memory in the form of a directed graph, with nodes of the directed graph representing asset metadata for enterprise data assets and directed edges of the directed graph between nodes representing relationships between the asset metadata, wherein a single directed edge from a first node of the directed graph to a second node of the directed graph indicates that the first node belongs to the second node, and wherein a pair of directed edges in both directions between the first node and the second node indicates a mapping between the first node and the second node;
>
> displaying, on a display, at least one path within the directed graph, the at least one path generated using a path finder tool, wherein the at least one path satisfies prescribed constraints defined in a query; and
>
> generating a report about the directed graph, wherein the report is displayed on the display and consists of asset metadata that correspond to the nodes traversed in the at least one path generated by the path finder tool.

Wachtel, when considered as a whole, fails to teach or suggest all of the features of amended claim 49. For example, *Wachtel* fails to teach or suggest: 1) "displaying, on a display, at least one path within the directed graph, the at least one path generated using a path finder tool, wherein the at least one path satisfies prescribed constraints defined in a query"; and "generating a report about the directed graph, wherein the report is displayed on the display and consists of asset metadata that correspond to the nodes traversed in the at least one path generated by the path finder tool."

IV.A. Displaying, on a display, at least one path within the directed graph, the at least one path generated using a path finder tool, wherein the at least one path satisfies prescribed constraints defined in a query

Wachtel, which is directed to an intelligent data assimilation system for servicing data requests using logical search objects across a field of servers, fails to teach or suggest displaying "at least one path within the directed graph, the path generated using a path finder tool." In fact, *Wachtel* has nothing to do with displaying a directed graph or an equivalent. The Examiner asserts otherwise citing Figures 3, 5, 7a, 7b, 9, and 11. With regard to these figures, *Wachtel* discloses:

> FIG. 3 is an architecture diagram illustrating an embodiment of an intelligent data assimilation system according to the present invention;

> FIG. 4 is a diagram of the levels within one embodiment of an intelligent data assimilation system ontology according to the present invention;

> FIG. 5 is a diagram depicting an exemplary embodiment of an ontological relationship between semantic constructs and their associated logical search objects in an ontology according to the present invention;

> FIG. 6 is a diagram depicting an exemplary embodiment of how service classes are created using the ontological relationships of logical search objects according to the present invention;

> FIGS. 7a and 7b are diagrams depicting how semantic objects are described within the metadata store;

> FIG. 8 is a diagram depicting the operations of an embodiment of an exemplary workflow according to the present invention;

> FIG. 9 is a collaboration diagram depicting the interactions within an embodiment of a workflow process according to the present invention;

> FIG. 10 depicts an exemplary embodiment of a logical search object used within a workflow according to the present invention;

> FIG. 11 is a diagram depicting the layered architecture of an embodiment of a generic logical search object according to the present invention and how this layered architecture is used to generate logical search objects with various connectivity capabilities;

Wachtel, column 3, line 45, to column 4, line 8.

As can be seen by *Wachtel*'s description of the figures, none of these figures cited by the Examiner is related to displaying a path within a directed graph. Figure 3 is merely an architecture diagram of the system disclosed by *Wachtel*. Figure 5 describes the ontological relationship between semantic constructs and logical search objects; however, *Wachtel* does not teach displaying this ontological relationship in the form of a directed graph. Similarly, Figure 7a describes how semantic objects are stored, but this graphical representation is that is part of *Wachtel*'s disclosure and not actually displayed in the practice of *Wachtel*'s teachings. Figure 9 is an illustration of the workflow taught by *Wachtel* that has nothing to do with a directed graph. Figure 11 is an illustration of the architecture taught by *Wachtel* and, similar to Figure 9, cannot be construed as a directed graph or a path of a directed graph.

While *Wachtel* may employ the use of an ontological model to service a data request, *Wachtel* does not actually display the model. *Wachtel* states:

> In one aspect of the invention, a method is provided for fulfilling a data service request. The method includes providing an ontology description of a data service a first logical search object operably coupled via a first communications link to a data provider. The first logical search object transmits to the data provider via the communications link a search request generated by the first logical search object from the data service request. The first logical search object receives from the data provider via the communications link a data set in response to the search request. The first logical search object generates a knowledge instance from the data set using the ontology description.

Wachtel, column 2, lines 12-23.

As can be seen from the above-cited paragraph, *Wachtel* is concerned with the architecture and the means of conducting a search rather than the presentation of the search result. *Wachtel* further states:

> The intelligent data assimilation system populates the ontological instance of the returned data and formats the data into a formatted data result 33 transmitted to the client as a response to the service request message.

Wachtel, column 4, lines 56-60.

In contrast, amended claim 49 recites "displaying, on a display, at least one path within the directed graph, the at least one path generated using a path finder tool, wherein the at least one path satisfies prescribed constraints defined in a query." As already mentioned, *Wachtel* does not once mention or suggest displaying a directed graph, much less a path within a directed

graph that satisfies prescribed constraints defined in a query. Furthermore, *Wachtel* does not contemplate the use of a path finder tool to generate a path that traverses a directed graph. This is because *Wachtel* is mainly concerned with the manner in which data requests are serviced rather than the presentation of the output. Although *Wachtel* mentions populating the ontological instance of the returned data and formatting the data set, this is not the same as displaying "at least one path within the directed graph, the at least one path generated using a path finder tool, wherein the at least one path satisfies prescribed constraints defined in a query." Therefore, *Wachtel* does not teach or suggest this feature.

IV.B. Generating a report about the directed graph, wherein the report is displayed on the display and consists of asset metadata that correspond to the nodes traversed in the at least one path generated by the path finder tool

  Wachtel also does not teach or suggest generating a report about the directed graph. As already demonstrated, *Wachtel* is unrelated to displaying or employing a directed graph. As such, *Wachtel* logically could not teach generating a report about a directed graph. Therefore, *Wachtel* does not teach or suggest "generating a report about the directed graph, wherein the report is displayed on the display and consists of asset metadata that correspond to the nodes traversed in the at least one path generated by the path finder tool," as recited in amended claim 49.

  Amended claim 95 recites similar subject matter as that of amended claim 49. As shown above, amended claim 49 is not obvious over *Wachtel* and is, therefore, in condition for allowance. If an independent claim is non-obvious under 35 U.S.C. § 103, then any claim depending therefrom is also non-obvious by virtue of their dependency. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988). Claims 50-94 depend on amended claim 49. Therefore, at least by virtue of their dependence on amended claim 49, claims 50-94 are not obvious over *Wachtel*.

  In addition, the dependent claims recite additional combinations of features not taught by the *Wachtel*. For example, dependent claim 67 recites "identifying redundancies among the enterprise data assets that correspond to nodes that are included within the at least one path." As already discussed, *Wachtel* is only concerned with the manner in which data requests are

serviced. *Wachtel* does not delve into data integrity issues. Therefore, the rejection of claims 49-95 under 35 U.S.C. § 103 has been overcome.

V. New Claims

Newly added independent claim 116 recites similar subject matter as that of amended claims 49 and 95. As shown above, amended claims 49 and 95 are not obvious over the cited art are, therefore, in condition for allowance. Thus, at least for the reasons set forth above in regard to amended claims 49 and 95, independent claim 116 is also non-obvious over *Wachtel*.

Newly added dependent claims 96-115 and 117-139 depend on claims 95 and 116, respectively. Therefore, at least by virtue of their dependence on amended claims 95 and 116, respectively, claims 96-115 and 117-139 are not obvious over *Wachtel*.

VI. <u>Conclusion</u>

It is respectfully urged that the subject application is patentable over the cited reference and is now in condition for allowance.

The Examiner is invited to call the undersigned at the below-listed telephone number if in the opinion of the Examiner such a telephone conference would expedite or aid the prosecution and examination of this application.

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Respectfully submitted,

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